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March 9, 2001

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MAR 9 2001

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

BY HAND DELIVERY

Ms. Magalie Salas, Secretary  
Federal Communications Commission  
445 12th Street SW  
Washington DC 20554

Re: ET Docket No. 00-258, *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems*

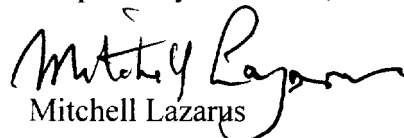
Dear Ms. Salas:

I submit herewith for filing with the Commission the original and four copies of Reply Comments of Clearwire Technologies, Inc., in the above-referenced proceeding.

Kindly date-stamp and return the extra copy provided.

If there are any questions about this submission, please contact me directly at the number above.

Respectfully submitted,

  
Mitchell Lazarus

Counsel for Clearwire Technologies, Inc.

ML:deb

Enclosures

cc: Thomas F. Daley, Esq.  
David Chauncey  
Service List

File of Comments 014  
ENCLOSURE

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Before the  
Federal Communications Commission  
Washington DC 20554

MAR 9 2001

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of	)	
	)	
Amendment of Part 2 of the Commission's	)	
Rules to Allocate Spectrum Below 3 GHz for	)	
Mobile and Fixed Services to Support the	)	ET Docket No. 00-258
Introduction of New Advanced Wireless	)	
Services, including Third Generation	)	
Wireless Systems	)	
	)	
Petition for Rulemaking of the Cellular	)	
Telecommunications Industry Association	)	
Concerning Implementation of WRC-2000:	)	RM-9920
Review of Spectrum and Regulatory	)	
Requirements for IMT-2000	)	
	)	
Amendment of the U.S. Table of Frequency	)	
Allocations to Designate the 2500-2520/	)	RM-9911
2670-2690 MHz Frequency Bands for the	)	
Mobile-Satellite Service	)	

**REPLY COMMENTS OF CLEARWIRE TECHNOLOGIES, INC.**

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Before the  
**Federal Communications Commission**  
Washington DC 20554

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Mobile-Satellite Service	)	

**REPLY COMMENTS OF CLEARWIRE TECHNOLOGIES, INC.**

Clearwire Technologies, Inc. (Clearwire) hereby files these reply comments in the above-captioned proceeding.<sup>1</sup> Clearwire is a provider of wireless high speed Internet access, and manufactures equipment for two-way fixed wireless Internet access in the 2500-2690MHz band.

**A. All Parties Agree That Sharing Between Fixed and Mobile Operations Is Not Feasible.**

No party to this proceeding supports fixed and mobile operations' sharing the same spectrum. Clearwire noted the impossibility of keeping mobile end users out of fixed territory.

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<sup>1</sup> *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems*, ET Docket No. 00-258, Notice of Proposed Rule Making and Order, FCC 00-455 (released Jan. 5, 2001) (Notice).

Interference will result whenever a mobile transmitter passes through the antenna pattern of a fixed receiver, or a mobile receiver passes within range of a fixed transmitter.<sup>2</sup>

CelPlan Technologies has quantified the measures necessary to avoid this risk. Its calculations show the border of a 3G network must be at least 2km away from the protected area of an MDS/ITFS station, and the 3G base station must be at least 49km away.<sup>3</sup> If this separation were feasible, it would yield extremely inefficient spectrum use. But in practice there is no way to keep 3G mobile users outside an MDS/ITFS operating area.

Even the most ardent 3G proponents have conceded that sharing is not an option.<sup>4</sup> The Commission should drop this idea from consideration.

**B. No Country Will Launch 3G Service at 2500-2690MHz for Several Years, If Ever.**

WRC-2000 identified the 2500-2690MHz band as a candidate for 3G.<sup>5</sup> Given the heavy domestic use of the band, one of the few reasons for even considering its reallocation to 3G is to further global roaming and harmonization.<sup>6</sup> Yet Motorola concedes that no country has implemented commercial 3G service in the band, and that none will do so until 2007 *at the earliest*.<sup>7</sup> Indeed, there can be no assurance that any country will ever launch 3G services at

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<sup>2</sup> Clearwire at 7.

<sup>3</sup> CelPlan Technologies (unnumbered).

<sup>4</sup> Verizon at 19; AT&T at 13; Motorola at 13.

<sup>5</sup> Notice at para. 4.

<sup>6</sup> Notice at paras. 4, 24, 30, 39.

<sup>7</sup> Motorola at 12.

2500-2690MHz. Reallocating the band for 3G will not promote global roaming and harmonization for several years, if ever. This is much too speculative a benefit to justify the enormous disruption that reallocation would cause to ongoing operations. In any event, as Clearwire has already explained, the development of software-defined radios is well underway. These radios will facilitate global roaming even if the United States does not reallocate the 2500-2690MHz band for 3G, since they will work in multiple bands.<sup>8</sup>

**C. No Party Seeking Reallocation Has Considered How to Accommodate the Incumbents.**

Clearwire (along with many other parties) noted the high levels of incumbent activity in the band:

- 2,175 ITFS and 2,570 MDS licenses in place,<sup>9</sup> operating over 124,000 transmitters;<sup>10</sup>
- 70,000 registered ITFS receive sites; *over one million* wireless cable (MDS) customers;<sup>11</sup>
- MDS "white space" auctioned in reliance on the current rules;<sup>12</sup>

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<sup>8</sup> See Clearwire at 12-13.

<sup>9</sup> *Spectrum Study of the 2500-2690 MHz Band*, Federal Communications Commission at 18-19 (November 15, 2000) (Interim Report).

<sup>10</sup> The average number of licensed transmitters exceeds 4,000 for each of 31 channels. Interim Report at 60.

<sup>11</sup> Interim Report at 18-19.

<sup>12</sup> Notice at para. 58.

- MDS spectrum used for high speed Internet access by 25 licensees in at least 43 markets, plus plans for offerings in numerous additional markets;<sup>13</sup>
- 2,267 pending applications to offer two-way service;<sup>14</sup> and
- billions of dollars invested by MDS interests in broadband fixed wireless services, in reliance on the current rules.<sup>15</sup>

This level of activity reflects the success of two Commission policies: promoting MDS as part of the effort to develop a competitive market in multichannel video services;<sup>16</sup> and encouraging the deployment of fixed, two-way, broadband Internet services in the MDS/ITFS bands as a competitive alternative to the DSL/cable duopoly.<sup>17</sup>

Proposals to reallocate the band are even less practical today than they would have been nine years ago, when the Commission last rejected the idea.<sup>18</sup> Even then, the Commission found there were too many ongoing operations in the band, too many subscribers, too many pending

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<sup>13</sup> Notice at para. 60. The Commission approved two-way service only recently. *Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions*, 13 FCC Rcd 19112 (1998), *recon.*, 14 FCC Rcd 12764 (1999), *further recon.*, FCC 00-244 (released July 21, 2000) ("*Two-Way Transmissions*").

<sup>14</sup> Notice at para. 60.

<sup>15</sup> Interim Report at ii.

<sup>16</sup> See, e.g., *Declaratory Ruling on the Use of Digital Modulation by Multipoint Distribution Service and Instructional Television Fixed Service Stations*, 11 FCC Rcd 18839, 18841-45 (1996); *Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service*, 9 FCC Rcd 7665, 7666 (1994).

<sup>17</sup> *Two-Way Transmissions*, 13 FCC Rcd at 19116-17.

<sup>18</sup> *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, 7 FCC Rcd 6886, 6889 at para. 17 (1992).

applications, and no suitable alternative spectrum.<sup>19</sup> All of these same considerations still militate strongly against reallocation, much more strongly today than in 1992.

Proponents of reallocation ignore these issues. Some demand access to the band without even mentioning the incumbents.<sup>20</sup> Some instead blame the incumbents, charging them with reluctance to disclose information about their use of the band<sup>21</sup> -- as though the information summarized above were consistent with reallocation.

Verizon tries a more creative argument. Verizon claims the Commission has reallocated spectrum that is not being used predominantly for its "intended purpose."<sup>22</sup> The 2500-2690MHz band is being used predominantly for commercial purposes, says Verizon, while its intended purpose is instructional. Therefore, the Commission should reallocate the band to 3G.<sup>23</sup>

This argument lacks both legal basis and supporting facts. Verizon cites only one precedent, a 1983 decision in which the Commission reallocated some ITFS frequencies to MDS<sup>24</sup> -- not because that spectrum was used for the wrong purpose, as Verizon suggests, but because not enough of it was being used for any purpose.<sup>25</sup> The situation is very different today.

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<sup>19</sup> *Id.*

<sup>20</sup> Nokia (unnumbered); Siemens at 31; VoiceStream at 2; Ericsson at 16-17.

<sup>21</sup> Universal Wireless Communications Consortium at 7; Qwest Wireless at 2-3.

<sup>22</sup> Verizon at 20.

<sup>23</sup> Verizon at 20-24.

<sup>24</sup> *Instructional Television Fixed Service*, 94 F.C.C.2d 1203 (1983).

<sup>25</sup> *See id.*, 94 F.C.C.2d at 1206, para. 4 (substantial number of unused ITFS channels in many areas of the country); at 1211, para. 17 (band is under-utilized); at 1213, para. 22 (30 states have 2 or fewer ITFS licensees; 21 states have none).



Moreover, by claiming the only intended use of this band is instructional, Verizon seems to say that other uses violate Commission rules. Yet Verizon acknowledges the Commission permitted ITFS leases to MDS in 1983,<sup>26</sup> leasing of unused ITFS channels to MDS in 1991,<sup>27</sup> digital modulation and service in 1996,<sup>28</sup> and two-way Internet service in 1998.<sup>29</sup> The current high level of commercial use not only fully complies with Commission rules, but directly furthers Commission pro-competitive policies.<sup>30</sup> Contrary to Verizon's implication, MDS operators have every right to provide service in the band. Their presence in large numbers is a dispositive argument *against* reallocation, not in favor of it.

Cingular takes a different tack. It asserts that unspecified "improvements in technology," together with refarming and relocating, could squeeze MDS and ITFS into just over a third of their present spectrum, freeing the rest for 3G.<sup>31</sup> But Cingular omits any description of this technology. Cingular does not explain how it works, or how much it costs, or who will pay for it. Similarly, Verizon states that MDS can use spectrum more efficiently by using smaller cell

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<sup>26</sup> Verizon at 21.

<sup>27</sup> Verizon at 22.

<sup>28</sup> Verizon at 22.

<sup>29</sup> Verizon at 22-23.

<sup>30</sup> *Declaratory Ruling on the Use of Digital Modulation by Multipoint Distribution Service and Instructional Television Fixed Service Stations*, 11 FCC Rcd 18839, 18841-45 (1996) (wireless cable); *Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service*, 9 FCC Rcd 7665, 7666 (1994) (wireless cable); *Two-Way Transmissions*, 13 FCC Rcd at 19116-17 (two-way broadband).

<sup>31</sup> Cingular at 24-25.

sizes,<sup>32</sup> but again does not say how. (Nor does Verizon explain how smaller cell sizes can result in better spectrum efficiency for one-way wireless cable services.) AT&T likewise invokes unnamed technology under the Commission's flexible technical and service rules to assert that MDS/ITFS could operate with reduced bandwidth,<sup>33</sup> but does not say how.

These arguments not only rely on nonexistent technology, but miss a fundamental point: even if MDS/ITFS users could somehow squeeze into, say, half their current bandwidth, this would still require replacing or retuning at least half of their total equipment -- that is, over 60,000 transmitters and well over half a million receivers. The Commission's sole experience to date with relocation involved only a few thousand point-to-point licenses, all operating from commercial sites, and no end users at all.<sup>34</sup> Even that relatively simple effort proved to be slow and contentious. The reallocation proponents are silent on how they plan to tackle a job orders of magnitude more difficult, modifying the equipment now used in hundreds of thousands of homes and classrooms.

### **CONCLUSION**

All parties now agree that spectrum sharing will not work. Clearwire and other interests showed in the first round of this proceeding that relocation is not feasible. A few 3G proponents continue to insist on relocating some or all of the million-plus MDS/ITFS users. Some point to

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<sup>32</sup> Verizon at 27.

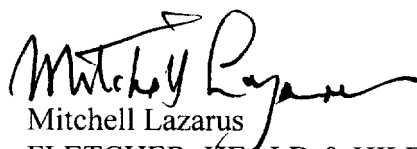
<sup>33</sup> AT&T at 13.

<sup>34</sup> *Plan for Sharing the Costs of Microwave Relocation*, 11 FCC Rcd 1923 at paras. 12, 14 (1995).

undefined or nonexistent technology to justify relocation. But none even attempts to explain how relocation can be accomplished.

The Commission must place 3G services elsewhere in the spectrum.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Mitchell Lazarus". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

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March 9, 2001

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